> specifically attributable to the instant SEQ ID NO:2 or its putative variants. In the absence of knowledge of the biological significance of these proteins, there are no immediately obvious patentable uses for these interferon-like proteins.

(*See,* Paper No. 15, Pages 2-3, Paragraph 4a).

Applicants strongly disagree and respectfully traverse.

Contrary to the Examiner's comments, and as pointed out in Applicants' July 6, 2001 response, Applicants have set forth in the specification statements that clearly and fully describe the function of KDI of the present invention and explain why Applicants believe the invention is useful.

For example, at page 6, lines 22-24 and lines 34-38 of the specification asserts that the claimed KDI polypeptides can be used to treat immune system-related disorders such as viral infection as well as use as a screening method to assay, for example, anti-viral activity. Further, page 247, line 34 through page 248, line 5 (Example 56) of the specification teaches that "[i]n several experiments, preparations of recombinant KDI containing 2% SDS were found to have protective activity." Thus, Applicants have shown that KDI protects human dermal fibroblasts from infection with encephalomyocarditis virus. In addition, the specification, at page 124, lines 25-27, teaches that KDI

> . . . can be used clinically for anti-viral therapy, for example, in the treatment of AIDS, viral hepatitis including chronic hepatitis B, hepatitis C, papilloma viruses, viral encephalitis, and in the prophylaxis of rhinitis and respiratory infections.

Thus, the specification teaches, for example, that KDI demonstrates a protective anti-viral activity because KDI is capable of inhibiting viral growth and thus would be useful in the treatment of viral infection.

Moreover, in corroboration of Applicants' asserted utility[1], Applicants respectfully direct the attention of the Examiner to the post-filing date publication of LaFleur et al., J.

---

[1] Applicants point out that the post filing date LaFleur et al. publication is being used to demonstrate the credibility of Applicants' asserted utility. Legal precedent for the use of post-filing date references in this manner can be found in *In re Brana*, where the courts stated:

> The Kluge declaration, though dated after applicants' filing date, can be used to substantiate any doubts as to the asserted utility since this pertains to the accuracy of a statement already in the specification. *In re Marzocchi,* 439 F.2d at 224 n.4, 169 U.S.P.Q. (BNA) at 370 n.4.

(See, *In re Brana*, 51 F.3d 1560 at 1567 n.19, 34 U.S.P.Q.2D (BNA) 1436 (March 30, 1995).)

Biol. Chem. 276:39765-39771 (2001), of which David LaFleur, Paul A. Moore and Steven M. Ruben, co-inventors of the present application, are co-authors (*see, e.g.,* LaFleur et al., *supra*, submitted herewith as Exhibit A, and as reference AC on Form PTO/SB/08A). In this publication, KDI is referred to as Interferon-kappa (IFN-κ). This publication provides results from experiments demonstrating that KDI imparts cellular protection against viral infection. As described in the paper, KDI was analyzed for its ability to protect either normal human dermal fibroblasts or murine L929 cells from infection with encephalomyocarditis virus (ECMV). KDI protected human fibroblasts from ECMV infection in a dose-dependent manner with protection observed in the presence of 1-10 ng/ml KDI protein. KDI displayed no anti-viral activity on mouse L929 cells. (*See, e.g.,* LaFleur et al. *supra* at page 39768, bottom of second column through top of second column at page 39769; and Figure 5.) In addition, human 2FTGH fibrosarcoma cell lines transfected with KDI expression vector were also protected from infection with vesicular stomatitis virus (VSV). *See* page 39769 of LaFleur et al., first column).

These results demonstrate that, as asserted in the specification as originally filed, KDI inhibits viral growth. The specification further explicitly teaches that KDI ". . . can be used clinically for anti-viral therapy." *See, e.g.,* specification, at page 124, lines 25-27. Accordingly, Applicants have contemplated and disclosed many therapeutic applications of KDI, for example, inhibition of viral growth and anti-viral therapy, consistent with the biological activity of KDI disclosed in the specification at page 248, lines 3-5 and corroborated in LaFleur et al. (Exhibit A).

Knowledge of a biological or pharmacological activity of a compound is beneficial to the public, and "adequate proof of any such activity constitutes a showing of practical utility." *Nelson v. Bowler*, 626 F.2d 853, 856 (C.C.P.A. 1980). As such, Applicants submit that adequate corroboration of a biological activity of KDI protein has been shown, thereby constituting a showing of practical utility.

Moreover, Applicants submit that the above asserted utilities for KDI are specific (the vast majority of proteins do not inhibit viral growth and would not be useful in anti-viral therapy) and substantial ("the general rule [is] that the treatments of specific diseases or conditions meet the criteria of 35 U.S.C. § 101." (Revised Interim Utility Guidelines Training Materials, p. 6)). As discussed above, Applicants submit that these utilities are credible.

The biological role and significance of KDI, as well as its specific, substantial, and credible utility, are clearly taught by the specification as originally filed. Applicants assert that such characterization is sufficient on its own to constitute a showing of utility.

Based upon 1) the homology of KDI with other IFN protein family members, 2) the general knowledge of those skilled in the art regarding the anti-viral activity of IFNs, and their involvement in antiviral activities, NK cell activation, and immune system enhancement; 3) the specific teachings of the specification of the use of KDI to inhibit viral growth, and the use of KDI in anti-viral therapy, 4) the fact that routine *in vivo* and *in vitro* assays for anti-viral activity were known in the art at the priority date of the captioned application and provided in the instant specification, and 5) the fact that experimental data showing the anti-viral activity of KDI was provided in the instant specification, it is reasonable to expect that KDI polypeptides, and variants and fragments thereof could be utilized, for example, in inhibiting viral growth and for anti-viral therapy. Further, Applicants have provided evidence in LaFleur et al. which corroborates the use of KDI to inhibit viral growth and for anti-viral therapy. As such, based on the totality of the evidence, an artisan of ordinary skill in the art of molecular biology would find the statements of utility contained in the specification to be credible, specific, and substantial.

With regard to the Examiner's contention that

> Several of the examples shown are 'prophetic' and do not represent 'real-world' examples, such as contemplating the construction of N-terminal and/or C-terminal deletion mutants: Example 9 states that 'the following general approach may be used to clone N-terminal and/or C-terminal deletion mutants (page 185, line 1).'

(*see,* Paper No. 15, Page 3, Paragraph 4a).

Applicants strongly disagree and traverse. Preliminarily, Applicants note per the MPEP §608.01(p)(II), prophetic examples are permitted in patent applications. However, as discussed above, Applicants disclosed evidence of anti-viral activity in Example 56.

Nevertheless, Applicants are unclear as to why a prophetic example is being characterized as not representing a "real world" example. First, Applicants are unclear as to what the term "real world example" means and how such an example is germane to an analysis of utility under 35 U.S.C. §101. Applicants are aware of "a real world use" which defines substantial utility, one of the prongs of the utility requirement, but Applicants are unaware of any requirement imposed by the Utility Guidelines, the case law or the MPEP that

mandates that an application's examples must depict a "real world use," particularly when examples are not a requirement for filing a patent application. Therefore, clarification is respectfully requested.

In view of the above, Applicants submit that the asserted utilities of the invention clearly meet the statutory requirement set forth in 35 U.S.C. § 101. Accordingly, Applicants respectfully request that the rejection be reconsidered and withdrawn.

II. Rejections Under 35 U.S.C. §112, First Paragraph

A. The Examiner further rejects claims 41-177 under 35 U.S.C. §112, first paragraph, as allegedly lacking enablement.

More specifically, the Examiner contends that "since the claimed invention is not supported by either a specific and substantial asserted utility or well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention." (*See,* Paper No. 15, Page 3, Paragraph 4b).

Applicants respectfully disagree and traverse.

For the reasons discussed above in response to the rejection under 35 U.S.C. § 101, Applicants submit that the claimed invention is supported by a specific and substantial credible utility. The Examiner "should not impose a 35 U.S.C. § 112, first paragraph, rejection grounded on a "lack of utility" basis unless a 35 U.S.C. § 101 rejection is proper." M.P.E.P. § 2107(IV) at 2100-28 (Rev.1, Feb. 2000). Therefore, since the claimed invention complies with the utility requirement of 35 U.S.C. § 101, the rejection of claims under 35 U.S.C. § 112, first paragraph, based on lack of utility of the claimed invention, should be withdrawn.

B. The Examiner further rejects claims 53, 64, 80, 94, 106, 117, 136, 148, 160, and 169 under 35 U.S.C. §112, first paragraph, as allegedly lacking enablement in their full scope.

More particularly, the Examiner alleges:

> Given the breadth of claims 53, 64, 80, 94, 106, 117, 136, 148, 160, 169, in light of the predictability of the art that random arbitrary sequence changes do not ensure variants with features of SEQ ID NO: 2, as determined by the lack of working examples, state of the art suggesting how guidance is needed for a skilled artisan even for single amino acids changes, it would require undue

experimentation for one of ordinary skill in the art to make and use the claimed invention.

(*See,* Paper No. 15, Page 6, Paragraph 4b).

Applicants respectfully disagree and traverse.

To satisfy the enablement requirement, the specification must enable a person of ordinary skill in the art to practice a single use of the claimed polypeptides without undue experimentation. *See, e.g.,* MPEP §2164.01(c). To make a proper enablement rejection, "the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention." MPEP §2164.04; *In re Wright*, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). Applicants respectfully submit that the Examiner has not provided sufficient evidence or a basis to question the enablement provided in the specification for the claimed polypeptides.

The Federal Circuit has held that *making the claimed species and screening them for function is acceptable*, as long as the experimentation is not undue. As in all cases, this is the test: whether it would require undue experimentation to practice the invention – even when a claim might encompass some inoperative embodiments. *See generally, Atlas Powder v. E.I. Du Pont de Nemours & Co.* 750 F.2d 1569, 224 U.S.P.Q. (BNA) 409 (Fed. Cir. 1984). Therefore, it is clearly not *per se* undue to make and test several fragments, particularly when specific guidance was clearly disclosed in the specification coupled with what was known in the art at the time the invention was filed.

At the time the invention was filed, it was *routine* to determine empirically that particular variants of KDI protein have either the biological activity or the *antigenicity* of the parent protein. Applicants note that the present claims do not recite a functional limitation that the Examiner seems to have improperly read from the specification into the claims. *See, e.g.,* MPEP§2111; *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The specification describes and teaches uses of the claimed variants that do not require a retention of biological activity, for example, as an immunogen to produce antibodies against KDI polypeptides, which have utility as discussed above.

Specifically, methods were available, as of the July 21, 1998 priority date of the instant application, for readily making and identifying numerous altered proteins that retain these functions of the original protein (*see* page 27, lines 27-36 of the specification). These mutations could be readily generated at random, and the nucleotide and encoded amino acid

sequences of the mutants could be readily determined. For example, Ikeda et al., 1992, J. Biol. Chem. 267: 6291-6296 (attached hereto as Exhibit B) describes the use of region-specific mutagenesis to map epitopes of the recA protein. In addition to identifying which alterations can be tolerated without affecting the antigenicity of a protein, the authors note that this technique facilitates "location of functionally active sites on the tertiary structure of the protein" (Ikeda et al., abstract). The authors conclude in the final paragraph at page 6296:

> The technique of region-specified random base substitution involving the use of PCR employed in this study is very useful not only for epitope mapping, as described in this paper, but is also widely useful for studies of the function of a gene and an enzyme or protein, because of the flexibility as to specifying a target region, and the high yield of the random base substitutions.

The Ikeda et al. method was modified to be even more expedient, as reported by Stuurman et al., 1995, Journal of Cell Science 108: 3137-3144 (attached hereto as Exhibit C). In mapping the phosphorylated epitope of *Drosophila* lamin, the authors concluded that their random mutagenesis and screening method was "both rapid and efficient" (Sturrman et al., at page 3143, right column). Similarly, methods of rapidly generating and screening numerous deletion mutants were also well known as of July 21, 1998 (Munro and Pelham, *EMBO J.* 3:3087-3093 (1984); Pollard et al., *EMBO J.* 11:585-591 (1992); Sugiyama et al., *PNAS* 88:9603-9607 (1991)). These methods would have been easily applied to identifying the variants of the KDI protein sequence. Thus, using these rapid mutagenesis and screening methods, a molecular biologist on July 21, 1998 could readily confirm both biological activity and antigenicity of numerous altered polypeptides.

Specifically, the Examiner contends that:

> The recitation of 'an isolated polypeptide comprising an amino acid sequence at least 95 or 90% identical to SEQ ID NO:2' in claims 64, 80 is overly broad. Such claim language can be interpreted to mean that the encoded polypeptides can have up to 5-10% of the amino acids distinct from that encoded by SEQ ID NO:1. Considering that SEQ ID NO:2 consists of 207 amino acids, up to 6-12 amino acids can be altered at any given time; also considering that the conserved regions are essential to retain interferon-like activity of the KDI polypeptides, and are not available for substitutions, the amino acids changes in the proposed variants would have to be selection from a polypeptide of considerably less than 207 amino acids. The disclosure fails to provide any guidance by way of example for any one of the KDI variants envisioned.

(*See,* Paper No. 15, Page 4, Paragraph 4b).

Applicants respectfully disagree and traverse and submit that armed with what was known in the art at the time the instant application was filed, one of skill in the art could readily envision, make and screen the claimed KDI variants. This point is well exemplified by the fact that based upon the present disclosure, the Examiner was able to perfectly envision how to make the present claimed KDI variants comprising at least 90-95% identity, e.g., that these would encompass a polypeptide fragment which has up to 6-12 amino acids out of the 207 amino acid residues of SEQ ID NO:2 altered. Further, the Examiner understands that to retain biological activity of the KDI polypeptide fragments (which, Applicants note, is *not* a limitation recited in the present claims), these up to 6-12 amino acid substitutions cannot be mutated from any functional domains.

With regard to retention of the biological activity or antigenicity of the claimed KDI variants, the instant specification provides detailed guidance in predicting which amino acid substitutions would affect the biological activity or antigenicity of the protein. First, the specification describes in detail several structural domains of the KDI protein (*see* Figures 4-6). Thus, the skilled person is given guidance as to the important structural features of the KDI protein. Second, Figures 2 and 4 provides an alignment of the KDI protein sequence with the homologous Interferon Omega protein, to show regions of conservation and divergence. Changes in amino acids residues *outside* these regions of homology would be less likely to affect the activity of the KDI protein (*see*, for example, page 55, lines 5-26 of the specification).

Furthermore, Figure 3 shows secondary structural features of the KDI protein, including alpha, beta, turn and coil regions; hydrophilicity and hydrophobicity; amphipathic regions; flexible regions; and surface probability. These features shown in Figure 3 would also be useful in predicting which amino acid substitutions would be likely to maintain the structural conformation and electrochemical properties of the protein. By choosing alterations that maintain these structures, the activity of the protein could be maintained. Another feature useful in this regard that is depicted in Figure 3 is an antigenicity plot. This antigenicity plot provides an even more targeted prediction of which amino acid residues would be important to the antigenicity of KDI protein. Alteration of amino acid residues in the negative regions of the antigencity plot would be less likely to affect the antigenicity of the KDI protein.

Thus, the skilled person could both screen the claimed polypeptide variants to see which retain the antigenicity or biological activity of KDI, and design such alterations using the guidance provided in the specification and routine methods known in the art. Therefore, one skilled in the art could readily make and use the claimed polypeptides with, at most, only routine experimentation.

Applicants also note that as discussed in the utility section above, *if* the preservation of biological activity for KDI variants is desired (as such is not recited in the claims) since the claimed KDI polypeptide was disclosed in the originally filed specification to possess anti-viral activity (*see* page 29, lines 10-11 and Example 56), coupled with the fact that it was well-known in the art and at the time of the earliest priority date how to test for such anti-viral activity (*see* page 29, lines 1-3; Example 56), the present disclosure therefore clearly provides guidance for such KDI variants of at least 90-95% identity envisioned, *without* undue experimentation, even to the Examiner. Therefore, Applicants respectfully request reconsideration and withdrawal of this aspect of the rejection with respect to these claims.

Moreover, the Examiner contends that:

> Recitation of 'an isolated protein comprising a polypeptide having...residues n-207 where n is an integer from 1-58...' in claims 94 and 106 is extremely broad.
>
> In similar fashion, recitation of 'an isolated protein comprising a polypeptide having ...residues 49-54, 59-65,...204-207 of SEQ ID NO:2' in claim 117 is extremely broad.
>
> Additionally, claim 160 is broad in reciting an isolated protein comprising at least 30 contiguous amino acid residues of SEQ ID NO:2.

See Pages 4-5, Paragraph 4b. Collectively, the Examiner contends that "without specific guidance, it would be undue experimentation for one of skill in the art to generate several fragments and test their usefulness." *See* Page 5, Paragraph 4b.

Applicants disagree and respectfully traverse.

Applicants submit that it is quite clear how to envision these claimed KDI variants; furthermore, Applicants have taught in the specification those preferred KDI variants which can retain biological activity or antigenicity (*see,* for example, page 51, lines 8-14; and line 32 to page 53, line 6; page 17, lines 5-14; page 39, lines 13-21; page 39, line 22 to page 40, line 16; page 40, line 37 to page 43, line 15; page 38, line 21 to page 39, line 5; page 55, line 27 to

page 56, line 16 of the specification).

To generate these variants, one of ordinary skill in the art would merely have to perform routine methodical truncations, discussed above and at page 27, lines 18-36; 29, line 31 to page 30, line 20; page 32, line 33-39; page 38, line 21-35; page 39, line 36 to page 40, line 8 page 49, line 23 to page 50, line 7 and lines 26-38 of the specification.

Therefore, Applicants have clearly disclosed which truncations and mutations are preferred to either retain biological activity and antigenicity. Furthermore, Applicants have also taught in the specification how to screen for those variants for both biological activity and antigenicity using routine methods known in the art at the time the application was filed.

Accordingly, Applicants request that the rejection of claims 53, 64, 80, 94, 106, 117, 136, 148, 160, and 169 under 35 U.S.C. § 112, first paragraph for alleged lack of enablement be withdrawn.

C. The Examiner rejects claims 53-135, and 148-177 under 35 U.S.C. §112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

More particularly, the Examiner alleges that:

> The instant written description sets forth a polypeptide of SEQ ID NO:2 representing KDI (pages 8-10). However, the written description is not commensurate with 'an isolated nucleic acid molecule encoding a polypeptide comprising an amino acid sequence of a polypeptide at least 90 or 95% identical to an interferon like polypeptide having the amino acid sequence of SEQ ID NO:2.

(*See*, Paper No. 15, Page 7, Paragraph 5a.)

Applicants respectfully disagree and traverse.

The test for the written description requirement is whether one of ordinary skill in the art could reasonably conclude that the inventor has possession of the claimed invention in the specification as filed. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1116 (Fed. Cir. 1991); M.P.E.P. § 2163.02. Further, the Federal Circuit recently re-emphasized the well-settled principle of law that "[t]he written description requirement does not require the applicant 'to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [they]

invented what is claimed,'" *Union Oil Co. v. Atlantic Richfield Co.*, 208 F.3d 989, 54 U.S.P.Q.2d 1227 (Fed. Cir. 2000). The court emphasized the importance of what the person of ordinary skill in the art would understand from reading the specification, *rather than whether the specific embodiments had been explicitly described or exemplified.* Indeed, as the court noted, "the issue is whether one of skill in the art could derive the claimed ranges from the patent's disclosure." *Unocal*, 208 F.3d at 1001 (emphasis added).

In an analysis of written description under 35 U.S.C. § 112, first paragraph, the Examiner bears the initial burden of presenting a *prima facie* case of unpatentability. This burden is only discharged if the Examiner can present evidence or reasons why one of ordinary skill in the art would not reasonably conclude that Applicants possessed the subject matter as of the priority date of the present application. *In re Wertheim*, 541 F.2d 257, 262, 191 USPQ2d 90, 96 (C.C.P.A. 1976); M.P.E.P. § 2163.04. In the instant case, the Examiner has not met this burden.

Applicants submit that the instant specification clearly teaches preferred KDI polypeptide variants encompassed within the scope of the claims. *See,* for example, page 51, lines 8-14; and line 32 to page 53, line 6; page 17, lines 5-14; page 39, lines 13-21; page 39, line 22 to page 40, line 16; page 40, line 37 to page 43, line 15; page 38, line 21 to page 39, line 5; page 55, line 27 to page 56, line 16 of the specification. Therefore, Applicants have clearly contemplated the many species within the scope of the instant claims.

The Examiner contends that:

> Conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the claimed invention. Therefore, the Applicant is not in possession of the invention as claimed, at the time of filing. This is insufficient to support the claims as provided by the Revised Written description Guidelines published in the Federal register, vol 66, No. 4, pages 1099-1111, Friday January 2001.

(*See,* Paper No. 15, Page 7, Paragraph 5a.)

Applicants respectfully disagree and traverse.

Rejection because "a conception is not achieved until reduction to practice has occurred" is neither supported by the U.S.P.T.O. Guidelines nor by case law. As stated in the Revised Written description Guidelines (Fed. Reg. Vol 66, No. 4, Section I, page 1104, Friday, January 5, 2001, emphasis added):

> To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. Possession may be shown *in a variety of ways* including description of an actual reduction to practice, *or* by showing that the invention was "ready for patenting" such as by the disclosure of drawings or structural chemical formulas that show that the invention was complete, *or* by describing *distinguishing characteristics* sufficient to show that the applicant was in possession of the claimed invention.

Therefore, *requiring* a reduction to practice to show conception as the *only* way to satisfy written description is incorrect by the U.S. Patent Office's own guidelines. Such a requirement also flies in the face of the underlying principles of filing a patent application; it in effect nullifies the practice of a constructive reduction to practice (*e.g.*, filing a patent application) and placing the public on early notice of the subject matter in the application. This cannot be the purpose of the Written Description Guidelines.

Applicants have provided the skilled artisan with the DNA (SEQ ID NO:1) and polypeptide (SEQ ID NO:2) sequences of KDI. Applicants have also deposited a cDNA clone encoding the polypeptide of the present invention with the American Type Culture Collection pursuant to the Budapest Treaty (ATCC No. 203500, deposited December 1, 1998). Thus, the present specification describes the core structural feature common to all of the claimed polypeptides (e.g., SEQ ID NO:2 or the protein encoded by the cDNA contained in the ATCC Deposit). Further, Applicants have also described variants of KDI, including specific degrees of homology and number of substitutions in the amino acid sequence of KDI that are specifically contemplated, discussed above. Accordingly, one skilled in the art, enlightened by the teachings of the present application, could quite readily recognize the claimed polypeptides, as distinguished from those not claimed. Accordingly, one skilled in the art would reasonably conclude that Applicants had possession of the polypeptides encompassed by the rejected claims, upon reading the present application as filed.

For all of the above reasons, Applicants respectfully emphasize that the Examiner has failed to meet the required burden in presenting evidence or reasons why those skilled in the art would <u>not</u> recognize the claimed invention from the disclosure. Moreover, the specification conveys with reasonable clarity that Applicants were in possession of the

claimed invention. Accordingly, Applicants respectfully request that the rejection of claims 53-135, and 148-177 under 35 U.S.C. § 112, first paragraph for inadequate description, be reconsidered and withdrawn.

D. The Examiner rejects claims 53-63, 80-93, 106-116, 148-159, and 169-177 under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

More particularly, the Examiner contends:

> Claims 53, 80, 106, 148, 169 recite the use of cDNA contained in ATCC Deposit No. 203500. This deposit is essential to the claimed invention. The reproduction of cDNA that encodes the KDI polypeptide must be obtainable by a repeatable method set forth in the specification or otherwise be readily available to the public. . . .
>
> Claims 54-63, 81-93, 107-116, 149-159, 170-177 are rejected insofar as they depend on claims 53, 80, 106, 148, 169.

(*See,* Paper No. 15, Pages 8-9, Paragraph 5b.)

The undersigned Attorney for Applicants hereby states that the cDNA encoding KDI was deposited under the terms of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure with the American Type Culture Collection (ATCC), 10801 University Blvd., Manassas, Virginia 20110-2209, USA. The deposit of the cDNA given ATCC Deposit Number 203500, comprises a recombinant nucleic acid vector into which cDNA sequence encoding KDI was inserted. The deposit of the cDNA encoding KDI, given ATCC Deposit Number 203500, was made on December 1, 1998.

In accordance with MPEP § 2410.01 and 37 C.F.R. § 1.808, assurance is hereby given that all restrictions on the availability to the public of the cDNA encoding KDI contained in ATCC Deposit Number 203500, will be irrevocably and without restriction removed upon the grant of a patent based on the captioned application, and that the deposit will be replaced if viable samples cannot be dispensed by the ATCC, except as permitted under 37 C.F.R. § 1.808(b).

Applicants note that the correct name and address of the ATCC is found, for example, at page 10, lines 15-16 of the specification as originally filed.

In view of the above discussion, Applicants believe the Examiner's concerns have been fully addressed. Accordingly, Applicants respectfully request that the rejection of claims 53-63, 80-93, 106-116, 148-159, and 169-177 be reconsidered and withdrawn.

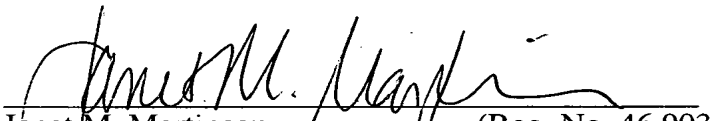
Conclusion

In view of the foregoing remarks, Applicants believe that this application is now in condition for allowance.

If there are any fees due in connection with the filing of this paper, please charge the fees to our Deposit Account No. 08-3425. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

Dated: January 23, 2002



Janet M. Martineau (Reg. No. 46,903)
Attorney for Applicants

Human Genome Sciences, Inc.
9410 Key West Avenue
Rockville, MD 20850
301-315-2723 (telephone)

KKH/JMM/CCB